

## CLAIMS

What is claimed is:

1. A chemical mechanical polishing (CMP) apparatus comprising:  
a polishing pad having a polishing surface; and  
a deformable pad attached to the polishing pad, the deformable pad comprising a plurality of laterally isolation solid supports, wherein the solid supports are devoid of entrapped cells of gas or liquid.
2. The CMP apparatus of claim 1, further comprising a substrate carrier, a polishing table, a first mechanical drive assembly for placing the polishing table in motion, and a second mechanical drive assembly for placing the substrate carrier in motion.
3. The CMP apparatus of claim 1, wherein the deformable pad further comprises a ventral layer attached to the bottom surface of each of the plurality of solid supports.
4. The CMP apparatus of claim 3, further comprising a dorsal layer attached to the top surface of each of the plurality of solid supports.
5. The CMP apparatus of claim 1, wherein the deformable pad further comprises a dorsal layer attached to the top surface of each of the plurality of solid supports.
6. The CMP apparatus of claim 1, further comprising at least one of a ventral layer and a dorsal layer integrally formed with the plurality of solid supports.
7. The CMP apparatus of claim 1, wherein the plurality of solid supports comprises a first plurality of solid supports having a first shape and a second plurality of solid supports having a second shape.

8. The CMP apparatus of claim 1, wherein the plurality of solid supports comprises a first plurality of solid supports having a first size and a second plurality of solid supports having a second size.

9. The CMP apparatus of claim 1, wherein the plurality of solid supports comprises one or more elastically deformable materials.

10. The CMP apparatus of claim 9, wherein at least one solid support of the plurality of solid supports comprises one or more materials of varying density.

11. The CMP apparatus of claim 9, wherein at least one solid support of the plurality of solid supports comprises a plurality of materials, each material of the plurality of materials having a different elasticity.

12. The CMP apparatus of claim 1, wherein at least one solid support of the plurality of solid supports has a cross-section that varies in size in a direction normal to the polishing pad.

13. The CMP apparatus of claim 1, wherein the plurality of solid supports are laterally spaced from each other at varying distances.

14. A method for chemical mechanical polishing (CMP) comprising:  
providing a CMP apparatus selected from a group consisting of a linear polishing apparatus and a polishing apparatus having a rotatable polishing table;  
providing a deformable pad comprising a plurality of laterally isolated solid supports, wherein the solid supports are devoid of entrapped cells of gas or liquid;  
providing a polishing pad attached to the deformable pad;  
providing a semiconductor substrate having a surface to be polished; and  
contacting the surface to be polished to the polishing pad.

15. The method of claim 14, wherein providing the deformable pad comprising the plurality of solid supports comprises providing a deformable pad comprising a plurality of solid supports attached to a ventral layer.

16. The method of claim 15, wherein providing the deformable pad comprising the plurality of solid supports attached to the ventral layer comprises providing a deformable pad including a plurality of solid supports attached to ventral and dorsal layers.

17. The method of claim 14, wherein providing the deformable pad comprising the plurality of solid supports comprises providing a deformable pad comprising a plurality of solid supports attached to a dorsal layer.

18. The method of claim 14, further comprising:  
integrally forming the plurality of solid supports with at least one of a ventral layer and a dorsal layer.

19. The method of claim 14, further comprising:  
forming the plurality of solid supports with a first plurality of solid supports having a first shape and a second plurality of solid supports having a second shape.

20. The method of claim 14, further comprising:  
forming the plurality of solid supports with a first plurality of solid supports having a first size and a second plurality of solid supports having a second size.

21. The method of claim 14, further comprising:  
forming the plurality of solid supports with one or more elastically deformable materials.

22. The method of claim 21, further comprising:  
forming at least one solid support of the plurality of solid supports with one or more materials of  
varying density.

23. The method of claim 21, further comprising:  
forming at least one solid support of the plurality of solid supports with a plurality of materials,  
each material of the plurality of materials having a different elasticity.

24. The method of claim 14, further comprising:  
forming at least one solid support of the plurality of solid supports with a cross-section that  
varies in size in a direction normal to the polishing pad.

25. The method of claim 14, further comprising:  
laterally spacing the plurality of solid supports from each other at varying distances.